



CFC donations top Marshall's \$416,000 goal

Marshall employees, contractors and retirees cared enough to share more than \$435,058 during the six-week Combined Federal Campaign, which concluded Nov. 12. The amount donated exceeds Marshall's 1999 goal of \$416,000 by more than \$19,000.

Offices with 100 percent participation are AD01, AD02, AD20, AD31, AD41, CD02, CD40, CD50, CD70, DA01, DD01, DE01, ED01, ED03, ED10, ED20, ED30, ED38, ED40, ED41, FD01, FD02, FD10, FD22, FD30, FD31, FD32, FD42, LS01, MP01, MP31, MP41, MP71, OS01, PS01, PS50, QS01, SD10, SD30, TD50, TD54, TD70, VS01, VS10, VS20, WS01, XP01, XP10, XP20, XP30, XP40 and YS01.



Photo by Doug Stoffer, NASA/Marshall Space Flight Center

Marshall salutes veterans

Andrea Thompson, left, and Debbie Scrivner ride aboard Marshall's Veterans Day float in the parade Nov. 11 through downtown Huntsville. The float was built by Ai Signal Research Inc. exhibit technicians Dewey Brown, Barry Howell and Randy Howell, who support the Media Relations Department exhibit team.

NASA, Lockheed Martin name team leads for X-33 hydrogen tank test damage investigation

The Marshall Center and its industry partner, Lockheed Martin Skunk Works in Palmdale, Calif., have named two senior aerospace executives to lead a team seeking probable cause of test-related damage to an X-33 liquid hydrogen fuel tank earlier this month.

Bob Goetz, senior adviser and former vice president of engineering for Lockheed Martin Skunk Works, and Bob Ryan, retired deputy director of Marshall's Structures and Dynamics Laboratory, will lead the team investigating the damage that occurred during testing at Marshall Nov. 3.

Other team members will be named shortly to the group that began assembling in Huntsville this week to analyze test data and the tank damage and determine the probable cause. The investigation is expected to take four to six weeks.

The hydrogen tank had been undergoing cryogenic and structural loads testing at Marshall since September. Before the anomaly occurred, the tank passed a pressure test with a full load of liquid hydrogen, as well as a structural loads test to simulate the force of the X-33's fully loaded liquid oxygen tank sitting

atop the liquid hydrogen tank.

The Nov. 3 run was part of a series of validation tests being conducted on the tank. After the test was complete and the tank drained, an engineer viewing monitors of the tank observed exposed core material on one lobe skin along the longeron — a structural element of the tank to which the lobe skins are bonded.

Impact of the damage to the X-33 program is unknown at this time.

Lockheed Martin Skunk Works is developing the X-33 technology demonstrator under a cooperative agreement with NASA. Alliant TechSystems in Clearfield, Utah, and Lockheed Martin Skunk Works fabricated components for the vehicle's hydrogen tanks. A joint Lockheed Martin-Alliant team in Sunnyvale, Calif., completed the assembly.

"Safety is Everybody's Business"

— Safety slogan submitted by
Todd MacLeod, SD22

Marshall's Child Development Center renews USDA program

The Marshall Child Development Center is participating in the U.S. Department of Agriculture (USDA) Child Care Food Program.

Balanced and nutritious meals will be available at no separate charge to all enrolled persons at the center and will be provided without regard to race, color, national origin, age, sex or disability.

If you believe you or anyone has been discriminated against, write immediately to: Administrator, Food and Nutrition Service, 3101 Park Center Dr., Alexandria, Va. 22302.

For more information, please contact the Marshall Child Development Center, Bldg. 4494, P.O. Box 9138, Marshall Space Flight Center, Ala. 35812, or call 256-544-8609.

The Income Eligibility Guidelines, effective through June 30, 2000, are below.

Household Income

Reduced Price Meals

HOUSEHOLD SIZE	ANNUAL	MONTHLY	WEEKLY
1	\$15,244	\$1,271	\$294
2	\$20,461	\$1,706	\$394
3	\$25,678	\$2,140	\$494
4	\$30,895	\$2,575	\$595
5	\$36,112	\$3,010	\$695
6	\$41,329	\$3,445	\$795
7	\$46,546	\$3,879	\$896
8	\$51,763	\$4,314	\$996
FOR EACH ADDITIONAL MEMBER ADD	\$5,217	\$435	\$101

Free Meals

1	\$10,712	\$893	\$206
2	\$14,378	\$1,199	\$277
3	\$18,044	\$1,504	\$347
4	\$21,710	\$1,810	\$418
5	\$25,376	\$2,115	\$488
6	\$29,042	\$2,421	\$559
7	\$32,708	\$2,726	\$629
8	\$36,374	\$3,032	\$700
FOR EACH ADDITIONAL MEMBER ADD	\$3,666	\$306	\$71

Graphic by Kevin Woods

VPP expected to enhance Marshall's 'safety culture'

John Nugent believes the Marshall Center's decision to apply for the Occupational Safety and Health Administration (OSHA) Voluntary Protection Program (VPP) will mean a positive change in the "safety culture" at Marshall.

"The Marshall Center has an excellent safety and health program. Now Marshall has an opportunity to have an exemplary safety and health program through VPP," said Nugent, an employee of Marshall's Propellant, Pressurants and Calibration contract.

Nugent was among others who represented the Center recently at the 15th Annual Voluntary Protection Program Participant's Conference in Washington D.C.

The VPP uses specific guidelines to define the model safety and health program. To obtain the program's prestigious Star rating, OSHA verifies that a company's safety program meets the criteria.

Nugent called the VPP "remarkable" and the conference included remarks from "corporate managers as well as working folks" who told "how this program had created positive change in their companies."

VPP improved employee safety and generated cost savings due to reductions in medical expenses and other costs associated with accidents, employee injuries and illness, Nugent said. The program also brought increased moral, productivity and quality improvements.

One VPP success story involves a Georgia manufacturing company that decreased its lost workday case rate from 17.9 in 1989 — when the company began implementing a VPP quality safety and health program — to 4.6 in 1992 when the plant was ready to qualify for the VPP Star. By 1994, the rate was 0.6.

Another company that produces chemicals reduced its recordable injuries by 32 percent over a four-year period. Of 178 companies participating in the VPP in 1994, nine had no injuries. Overall, the companies had only 45 percent of the injuries expected, or were 55 percent below the expected average for similar industries.

"The VPP is an employee program that involves everyone at a site," Nugent said. "The site in our case is Marshall. There are specific areas that are reviewed to ensure requirements are being met. The diligence of meeting these requirements is the responsibility of all employees."

Many of the VPP guidelines already are part of Marshall's safety program. The remaining elements are being incorporated into the new Marshall Safety Manual that will be released this fall. Teams are being formed to communicate the new Marshall safety and health program, to train employees and to improve safety throughout the Center.

Nugent invites employees to join the Marshall VPP team. For more information or to volunteer, call Kristie French, the Marshall VPP manager at 544-7474. "You can join the VPP team and make Marshall an even better, safer place to work through your participation," Nugent said.

Information Services Department provides team to help with proposals

Marshall's Information Services Department is offering a new service to help support the growing requirement to submit proposals in competition for contract awards.

The Proposal Production Support Team — in Scientific and Commercial Systems Corp.'s Technical Illustration and Publications Office — will ensure that each proposal is in a format and appearance to best demonstrate Marshall's professionalism, expertise and ability.

The team will provide highly skilled text editing, graphics production, proposal layout and camera-ready art services, as well as coordination with printing and reproduction. Editing will focus on grammar, punctuation, style, format and presentation of graphics and text to ensure uniformity and compliance to proposal guidelines.

Close coordination will be maintained between proposal principal investigators, document authors and the production support team leader to ensure that material is submitted on time, and edited materials are returned promptly.

The team is located in Bldg. 4200, room G28. Halley Little, the team leader, can be contacted at 256-544-5993 or by e-mail at:

halley.little@msfc.nasa.gov

To use this support, contact the directorate point of contact for proposal development. Each point of contact can arrange the charge codes needed and guide the process. Directorate contacts are Steve Pearson, Engineering; David Smitherman, Flight Projects; Linda Carpenter, Center Operations; Byron Butler, Procurement Office; Joe Hamaker, Systems Management Office; Ron Koczar, Science; Bill Millwood, Transportation; Vernotto McMillan, Customer and Employee Relations; and John Howell, Office of Chief Financial Officer.

Marshall invites public to tour facilities May 20 during 'Open House 2000'

Join in the excitement of America's future in space at Marshall's Open House from 9 a.m.-6 p.m., Saturday, May 20, 2000. Admission is free.

See out-of-this world space flight technology demonstrations, appearances by NASA astronauts and space experts, and enjoy games, family activities and entertainment.

Get a first-hand look at the Marshall Center's laboratories and sophisticated test facilities.

For more information, call Angela Storey at (256) 544-0632.

Safety Awards

Marshall Deputy Director Carolyn Griner recently presented NASA Safety Awards to Lockheed Martin, Computer Sciences Corp., and Bionetics Corp.



Photos by Doug Stoffer/ NASA/Marshall Space Flight Center

Charles Garner, left, of Lockheed Martin Huntsville Operations, accepts a NASA Safety Award.



David White, left, of Computer Sciences Corp., accepts the award on behalf of PRISMS.



Dwight Bates, left, accepts the award for Bionetics Corp.

Marshall testing mirrors for Next Generation Space Telescope

by Debra Valine

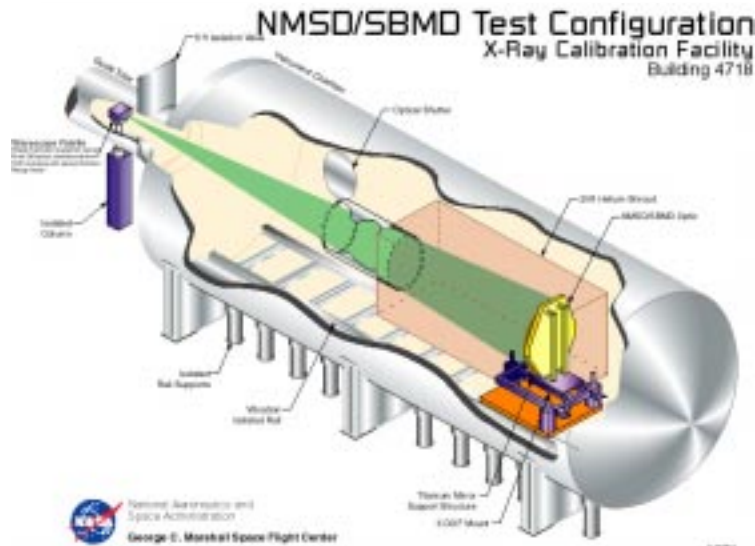
The X-ray Calibration Facility at Marshall has a new mission. Testing has started on a mirror technology demonstrator that could one day be part of the Next Generation Space Telescope.

The facility — used to test components of the Chandra X-ray Observatory — was modified to test the various mirror technologies being developed by the Next Generation Space Telescope program. Technicians at Marshall's Space Optics Manufacturing Technology Center built a cryogenic shroud and optic equipment that will test the mirror at 35 degrees Kelvin. The Kelvin temperature scale records very high and very low temperatures. Zero on the Kelvin scale equals minus 460 degrees Fahrenheit.

The mirror is undergoing a series of optical performance tests at temperatures of less than 35 degrees Kelvin. Upon completion, the mirror will be returned to the manufacturer, Ball Aerospace of Boulder, Colo., for final polishing to cryogenic standards.

The Ball Aerospace mirror has been in development for two years. The culmination of the technology effort will be measurement of the mirror at below 35 Kelvin.

All the mirrors that will be cryogenically tested at the X-ray Calibration Facility



support the Next Generation Space Telescope technology road map. Goddard Space Flight Center in Greenbelt, Md., manages the program.

"It has taken 15 months to put together the facility," said John Keidel, lead for development of the cryogenic facility. "We've used a lot of the equipment and machinery that was originally designed for AXAF/Chandra, and converted it for use with this project. It has saved the government a lot of money. Plus, having the testing take place in one facility, as opposed to three or more, allows us to maintain conditions and ensure consistent results during the test period."

"The development of the facility has not been an easy task," said David Jacobson, Marshall's lead for the program. "In addition to modifying the one-of-a-kind facility, there were vibration and thermal problems that had to be resolved."

"The first problem encountered was excessive vibration that limited the use of phase-shifting

interferometry during testing," said Jeff Kegley, team lead for mechanical operations at the test facility. Although the chamber is well isolated from vibration, interferometry over the long path lengths required for these mirrors — 15-20 meters — makes it difficult to

maintain a vibration level where higher resolution phase-shifting interferometry can be utilized.

Another issue that had to be overcome was making sure the temperature in the chamber reached 35 Kelvin with very small gradients. "Instrumentation of the chamber with silicon diodes and thermocouples becomes an issue at 35 Kelvin because silicon diodes work well at 35 Kelvin and thermocouples do not," said Richard Siler, electrical systems team lead at the test facility. "Getting accuracy at these temperature extremes without imparting undesired effects into the mirror is a challenge."

"The Optical Test Group has been very resilient and innovative in approaching the thermal control problem," Jacobson said. "This is a shining example of how to resolve problems in a timely manner within the government acquisition system."

Development of this mirror technology is a cooperative effort involving not only Goddard and Marshall, but also contractors Ball Aerospace; Composite Optics Inc. of San Diego, Calif.; the University of Arizona at Tucson; and the University of Alabama at Huntsville. Two additional mirrors will be tested in the next six to eight months. These mirrors are a 1.6-meter glass hybrid mirror from Composite Optics and a 2.0-meter mirror from the University of Arizona.

The writer, a contractor employed by ASRI, is the Marshall Star editor.



Photo by Terry Leibold, NASA/Marshall Space Flight Center

A small beryllium mirror demonstrator undergoes cryogenic testing at Marshall. The mirror technologies being tested at the X-ray Calibration Facility may one day be part of the Next Generation

Upcoming Events

Rick Bachtel Retirement Reception — A retirement reception honoring Rick Bachtel, deputy director of the Space Transportation Directorate, will be held from 4-6 p.m. Dec. 9 in the Bldg. 4203 cafeteria. Tickets, at \$7.50 each, can be purchased from administrative officers.

Native American Heritage Month Celebration — An Intertribal Celebration for Native American Heritage Month will be held from 2:30-5 p.m. Thursday at the Redstone Arsenal Recreation Center, Bldg. 3711. There will be sweets sampling, Native American music, displays and vendors.

NASA Exchange Nut Sale — The NASA Exchange annual nut sale starts Friday. Sales will be from 9 a.m.-4 p.m., Monday-Friday (excluding holidays) in the Marshall Activities Bldg. Prices are: pecans 16 oz., \$5.50; natural almonds 12 oz., \$2.50; salted (in shell) natural pistachios 16 oz., \$3.60; English walnuts 16 oz., \$3.25; cashews 16 oz., \$5.50; raw peanuts 16 oz., \$2; chocolate-covered pecans 16 oz., \$7; hickory smoked almonds 12 oz., \$3; and honey roasted almonds 12 oz., \$3.

MARS Ballroom Dance Club Christmas Dinner Dance — The MARS Ballroom Dance Club is sponsoring a Christmas Dinner Dance at 6:30 p.m. Dec. 11 in the Von Braun Center East Hall. The semi-formal event includes a holiday buffet dinner and the Nite Owls band will play ballroom dance music from 8-11 p.m. Tickets — at \$25 per person with a \$5 discount for club members — can be purchased from Hugo Berry at 544-3525, Tamara Landers at 544-6818, Pat Sage at 544-5427, Ed Ogozalek at 837-1486, Linda Kinney at 544-0563, or Bob Williams at 544-3998. To reserve a table for eight, call Woody Bombara at 650-0200.

Information Technology Training — A three-day course, Risk Management and Security Policy Development, is being offered Dec. 7-9, location to be determined. The training will address the often complex world of information technology security policy, plans and risk management procedures. For more information, call Chris Robinson in Marshall's Employee and Organizational Development Department at 544-1422.

ODIN contractor provides information technology services at Marshall

Under the Outsourcing Desktop Initiative for NASA (ODIN) contract, the OAO Corp. provides information technology services for the Office of Space Flight Centers.

ODIN services at Marshall are available by calling the One-Stop-Shop at 544-HELP. ODIN support team members — Customer Support Specialists — provide customer services.

ODIN services are bundled into "seats" to support desktop computers, servers, local area networks, telephones, local video, administrative radios, remote communications and public address requirements.

The contract is intended to transfer the responsibility and risk for providing and managing the vast majority of NASA's desktop, server and intra-Center communications assets and services. NASA, tenants or NASA-supported sites and NASA contractors can use ODIN.

The OAO ODIN Alliance organization is a customer-focused group of information technology professionals led by Mitzi Dowdy, program manager, and David Kizer, deputy program manager.

For more information about ODIN services, call each organization's Customer Support Specialist, Rosie Reese at 730-2929 or Sandra Richardson at 730-2928. A list of specialists is available on the Web at: <http://odin.msfc.nasa.gov>

Job Opportunities

Reassignment Bulletin 00-2-CV, AST, Mission Operations Integration, GS-801-13, Flight Projects Directorate, Payload Operations and Integration Department, Payload Operations Directors Group. Closes Nov. 23.

Reassignment Bulletin 00-3-CV, AST, Mission Operations Integration, GS-801-14, Flight Projects Directorate, Payload Operations and Integration Department, Payload Operations Directors Group. Closes Nov. 23.

Reassignment Bulletin 00-1-CP, AST, Aerospace Flight Systems, GS-861-13/14, Science Directorate, Science System Department, Spaceflight Experiments Group. Closes Dec. 1.

CPP 00-13-RE, AST, Aerospace Flight Systems, GS-861-14, Space Transportation Directorate, ISSPM Propulsion Module Project Office. Closes Nov. 30.

Marshall planning to form local high school co-ed Explorer post

Marshall's Education Programs Department plans to form a co-ed Explorer post for high school students here as part of continuing public outreach activities.

This post will emphasize exposure to aerospace careers, community service and

high adventure. Employees with children in high school who are interested in joining will receive first preference.

A number of mentor volunteers are needed to help with the program. For more information, call Pamala Heard at 544-0776 or Dr. Jonathan W. Campbell at 544-7076.

Countdown to Y2K 43 Days Left

For any prescription medications taken, have some extra on hand.

Courtesy of Information Services Department

Employee Ads

Miscellaneous

- ★ Golf clubs and bag, \$40; lawnmower, needs repair, \$15. 536-8951
- ★ Go-cart, hardly ridden, \$850; Super Nintendo, 7 games, \$100; Sega Saturn, 10 games, \$120. 883-9286
- ★ BTL "Sunset Boulevard," two tickets, Saturday, 4/8/00, 8 p.m., loge row A, seats 12-13, \$40.50 each. 880-1544
- ★ Oak and hickory firewood, cut to any length, will deliver. 931-433-6642
- ★ Baby bed comforter set, \$25; computer "City Shapes" comforter set, for kid's room, all accessories included, \$125. 776-3040
- ★ Registered golden retriever, 4 months old, male, house trained, crate trained, puppy school graduate, \$350. 885-0559
- ★ "Playing the Piano" kit and mini piano, \$30. 722-9483/Harry
- ★ Super Nintendo games, \$15 ea.; Super Nintendo system needs repairs, free w/purchase of \$100 in games. 533-5942
- ★ Satellite dish, 10' w/all accessories, \$300. 586-7424
- ★ Raleigh 12-speed men's bicycle, racing style, \$150. 539-0263
- ★ Half-carat diamond solitaire ring, \$1,500. 859-8764
- ★ Entertainment center, solid wood, hand built, \$350. 859-8764
- ★ Stair-climbing machine, \$65; small microwave, 2 power levels, clean, \$25. 881-6419
- ★ Sears dryer, \$50; 1998 Amana commercial washer, super capacity, 7-cycle, stainless steel tub, \$225. 883-5955
- ★ Early American couch, three cushions, multi-color, 88"x36", two gold lamps. 837-7999
- ★ Franklin wood-burning stove, Al. built, completely reconditioned, sits on three lion's feet, \$300 obo. 864-0465
- ★ Step 2 Child's Laundry Center, includes washer/dryer, ironing board, ages 2 and up, \$35. 233-1248
- ★ Mitsubishi 52" big screen TV, \$250. 721-9723
- ★ Post hole diggers, \$15; antique brass fireplace tools, \$15. 461-8369
- ★ Classic Morgan sailboat, 22', 1970, beam 8', draft 22", sleeps 4, mini galley, icebox, water tank, \$2,500. 883-4177
- ★ Four Goodrich mud terrain tires, w/6-lug Chevy Rally rims, 33X12.50R15LT, \$400. 551-9060

Vehicles

- ★ 1995 Suzuki Sidekick Limited, 54K miles, 5-speed, CD player, pro-tint, tilt-wheel, alloy wheels, new tires, \$5,400 obo. 859-8798
- ★ 1991 GMC Sonoma, 2.8L, V-6, 5-speed, matching camper shell, 92K miles, \$4,500. 423-4151
- ★ 1999 Gulfstream Sun Voyager, 34', <2K miles, Ford chassis, satellite, 2 slide-outs, greens/tans, \$75,000 obo. 350-1292
- ★ 1993 Mazda 929, 117K miles, loaded, leather, security system, sunroof, \$8,450 obo. 533-9006
- ★ 1996 Mazda 626 LX, 55K miles, white, V-6, loaded, moon roof, spoiler, \$11,200. 574-5098 after 5:30 p.m.
- ★ 1988 Chrysler LeBaron convertible, yellow w/tan top, 2.2L turbo engine, \$1,750 obo. 778-9149/Dave
- ★ 1998 Volkswagen NewBeetle, black w/tan interior, TDI diesel, 5-speed, 25K miles, sports pkg., 45/50 mpg, \$20,000 negotiable. 772-0430
- ★ 1992 Olds 88 LS, 4-door, beige, loaded, 80K miles, \$6,500 obo. 882-3214
- ★ 1992 Mazda 929, loaded, high mileage, \$5,800 obo. 990-3263
- ★ 1998 Mitsubishi Montero Sport ES, black w/custom paint, roof rack, CD, a/c, 5-speed manual, 17K miles, \$17,300 obo. 961-1328/day
- ★ Motor home, 26', 46K miles, \$7,500. 729-8020
- ★ 1989 Buick LeSabre, high mileage, \$1,250; mountain bike, Bridgestone, MB-2, \$350. 544-0987
- ★ 1995 Mercury Sable GS, loaded, 89K miles, \$5,100. 721-9749
- ★ 1988 Dodge Dynasty LE, new a/c, good tires, 3.0L, 137K miles, one-owner, \$1,700. 233-1136
- ★ 1983 Mazda B2000 pickup, 94K miles, 5-speed, \$1,150 obo. 539-0507

Wanted

- ★ Full-size wicker headboard. 971-0048
- ★ Recreational go-cart, 5HP. 353-9068/leave message
- ★ Digital satellite dish system. 883-2529
- ★ Piano in good condition. 881-6076

Found

- ★ Sunglasses, found at Regions Bank. 544-4758
- ★ Lady who called about the silver ring that was found, please call 544-4541

Free

- ★ To good home, gray cat, de-clawed, female, approx. 1 yr. old, found as stray. 464-5887

Center Announcements

- ✦ **Habitat for Humanity** — Habitat for Humanity of Madison County will address, sign, stamp and mail holiday cards purchased through Habitat for Humanity for \$5 each. Each purchase is tax deductible. For more information, call 533-2282.
- ✦ **Girl Scout Cookies** — Area Girl Scouts are taking advance orders through Dec. 5 for Girl Scout Cookies to be delivered in January. Cookies are \$3 per box. To locate a local Girl Scout troop, call 1-800-410-8338.
- ✦ **MARS Fishing Club** — The next tournament is the Sauger Tournament on Dec. 11 on Wheeler Lake out of Ditto Landing. The club encourages participation by NASA employees, family members and on-site contractors. A boat and experience are not required. For more information, call Charles Kilgore at 544-9437, Don McQueen at 544-9073 or Charlie Nola at 544-6367.
- ✦ **MESA Meets** — The Marshall Engineers and Scientists Association (MESA) will meet at 11:30 a.m. Thursday in Bldg. 4471, room C-105.
- ✦ **Shuttle Buddies Breakfast** — The Shuttle Buddies will meet for breakfast at 9 a.m. Nov. 22 at Mullins Restaurant on Andrew Jackson Way. For more information, call Deemer Self at 881-7757 or Gail Wynn at 852-8189.
- ✦ **MARS Ballroom Dance Club** — The MARS Ballroom Dance Club will offer swing and foxtrot lessons on Nov. 22 and 29 in the Parish Hall of St. Stephen's Episcopal Church at 8020 Whitesburg Drive. Intermediate classes will start at 7 p.m. and beginner classes at 8 p.m. The lessons will be taught by Don Worrell and cost \$4 per person per night. For more information, call Linda Kinney at 544-0563.
- ✦ **NARFE Meets** — The National Association of Retired Federal Employees (NARFE) meets at 9:30 a.m. Saturday at the Senior Center on Drake Avenue. Officers will be elected, and Insurance Counselor Pete Maiker will provide an update on the changes in the Federal Employee Health Benefits Program (FEHBP) as well as changes in Medicare. FEHBP open season runs through Dec. 13. For more information, call 837-0382 or 881-3168.
- ✦ **S&H Barber Shop Closed** — The S&H Barber Shop in Bldg. 4203 will be closed Nov. 25 and 26 for the Thanksgiving holiday.

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Editor — Debra Valine

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